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Clinical usefulness of the IUD post insertion ultrasound in symptomatic and asymptomatic patients

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Abstract

The aim of this retrospective chart review study was to evaluate the clinical usefulness of an ultrasound performed at the intrauterine device (IUD) post insertion visit in an otherwise asymptomatic patient. The data demonstrated that 18% of asymptomatic patients required an IUD removal based on an IUD post insertion ultrasound 4-8 weeks after insertion. This study does support the routine use of performing an ultrasound at the IUD post insertion visit in an otherwise asymptomatic patient.

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Introduction

Clinical effectiveness, a favorable safety profile, and ease of placement in the outpatient setting have all contributed to an increased use and importance of the intrauterine device (IUD) for indications of contraception and heavy menstrual bleeding over the past decade.[1]

In addition to causing post insertion symptoms of pain, bleeding, or abnormal vaginal discharge, an expulsed, displaced, or malpositioned IUD may have reduced clinical efficacy for contraception or relief of heavy uterine bleeding. Such issues may affect patient satisfaction or continuation of IUD use.[2]

It has been suggested that the highest risk of downward migration or spontaneous expulsion of an IUD may occur in the first month of use.[3]

For those reasons, an IUD post insertion office visit is routinely recommended 4-6 weeks after successful IUD placement. Patient symptoms and a clinical exam are often performed at that visit to ascertain any post insertion problems or complications from IUD insertion.

The routine use of 2-D and 3-D ultrasound at the IUD post insertion visit has been advocated by some[4], but not supported by others.[5]

The aim of this retrospective chart review study was to evaluate the clinical usefulness of an ultrasound performed

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at the IUD post insertion visit in an otherwise asymptomatic patient.

Materials and Methods

Institutional Review Board approval (Northwest Community Hospital 18-09) was obtained for this retrospective chart review study. An electronic medical record data list was compiled from all IUD insertions in our outpatient gynecology clinic from January 1, 2014 to July 27, 2018.

Pre-insertion data obtained included patient characteristics of age, parity, and indications for IUD placement. Postpartum IUD insertion was noted if placed within 12 weeks of delivery with the mode of delivery recorded.

IUD brand type and any intervening office visits prior to the scheduled 4-6 weeks IUD post insertion visit for IUD insertion related problems such as expulsion, pain, bleeding, or abnormal discharge after insertion were reviewed.

The 4-6 weeks IUD post insertion office visit data was reviewed for post insertion symptoms of pain, bleeding, IUD expulsion or other IUD related problems since the time of placement. When performed, ultrasound findings at this visit were also reviewed. An IUD post insertion transvaginal ultrasound (2-D and 3-D) is routinely scheduled 4-6 weeks after IUD placement.

For the purposes of this study, asymptomatic patients after IUD insertion were defined as those patients who reported no pain or bleeding greater than 1 week after IUD insertion, expulsion or removal of the IUD prior to the 4-6 weeks IUD post insertion visit, had no intervening office visit for an IUD related problem prior to the scheduled 4-6 weeks IUD post insertion visit, and had an ultrasound (2-D and 3-D) performed at the scheduled IUD post insertion visit.

Ultrasound findings were defined as within the endometrium and both arms open (normal position), or as abnormal if within the endometrial cavity with one or both arms not deployed, one or both arms embedded within the myometrium, IUD located in the lower uterine segment, IUD located near the cervical tip, lower shaft of IUD in fundal location, or clockwise/counterclockwise rotation with a lower uterine IUD location, or a combination of those findings within a single patient. Expulsions, uterine perforations, or extra uterine IUD locations were also identified if present.

All IUD's were placed by experienced MD providers in an outpatient office setting, with the exception of 1 IUD placed under IV sedation in the outpatient surgical center. 2-D and 3-D follow up ultrasound examinations were performed by experienced ultrasound technicians with MD provider review.

Results

A total of two hundred eighteen patient charts with IUD insertion were identified during the fifty five month study period. Of these, one hundred and forty seven (67%) had sufficient data for this retrospective review.

Sixty three (43%) of the one hundred and forty seven were symptomatic after IUD insertion. Eighty four (57%) were asymptomatic at the IUD post insertion visit.

The mean age of symptomatic patients was 31.9 years (range 15-43). Seventeen (27%) were nulliparous and forty-six (73%) were of single or greater parity. Twenty-five (40%) were postpartum IUD insertions, of which eighteen (29%) were after vaginal delivery, four (6%) were after primary C-section, and two (3%) were via repeat C-section.

Indications for IUD use among the symptomatic patients were: contraception (n=55), menorrhagia (n=5), dysmenorrhea (n=1), and more than one indication for IUD use (n=2).Two patients had more than one indication for IUD use.

IUD brand types of the symptomatic patients included Mirena (n=31), Paragard (n=7), Liletta (n=16), Kyleena (n=6), and Skyla (n=3).

Fifty (79%) of the symptomatic patients did not require IUD removal. Thirteen (21%) of these patients required removal: twelve (19%) due to abnormal IUD positioning noted on follow up ultrasound examination and in one (1.5%) symptomatic patient with persistent IUD post insertion pain. No complete expulsions, uterine perforations, or pregnancies were noted in the symptomatic group.

Eighty-four (57%) of the 147 patient charts reviewed met the criteria for being asymptomatic after IUD insertion. The mean age of the asymptomatic patients was 33.0 years (range 21-49). Nineteen (23%) were nulliparous and sixty five (77%) were of one or more parity. Twenty-five (30%) of the asymptomatic patients were postpartum IUD insertions of which twelve (14%) were via vaginal delivery, five (6%) via primary C-section, and eight (9.5%) were by repeat C-section.

Indications for IUD use in the asymptomatic patients were contraception (n=73), menorrhagia (n=10), and dysmenorrhea (n=1). IUD brand types included: Mirena (n=33), Paragard (n=33), Liletta (n=12), Kyleena (n=4), and Skyla (n=2).

Of the eighty-four asymptomatic patients, twenty-three (27%) had abnormal ultrasound findings related to abnormal IUD location. Two (2%) patients had a bicornuate uterus and two (2%) patients had an arcuate uterus within this asymptomatic subgroup.

Fifteen (18%) of the asymptomatic patients required removal of the IUD based on the subsequent IUD post insertion visit ultrasound findings. The average IUD post insertion visit was 5.5 weeks (range 4-8 weeks) for the asymptomatic group.

There were no expulsions, no perforations, and no pregnancies identified in any of the eighty four asymptomatic patients at the IUD post insertion visit.

Characteristics and outcomes of the symptomatic and asymptomatic patients are summarized in Table 1.

Table 1. Characteristics of outcomes of symptomatic and asymptomatic patients after IUD insertion

	Symptomatic (n=63)	Asymptomatic(n=84)
Age (years)	31.9 (range: 15-43)	33.0 (range: 21-49)
Nulliparous	17 (27%)	19 (23%)
Parous	46 (73%)	65 (77%)
Postpartum insertion	25 (40%)	25 (30%)
NSVD	18 (29%)	12 (14%)
Primary C-section	4 (06%)	5 (06%)
Repeat C-section	2 (03%)	8 (9.5%)
Indications		
Contraception	55 (87%)	73 (87%)
Menorrhagia	5 (08%)	10 (12%)
Dysmenorrhea	1 (1.5%)	1 (01%)
Two indications	2 (03%)	——
IUD Brand Type		
Mirena	31 (49%)	33 (39%)
Paragard	7 (11%)	33 (39%)
Liletta	16 (25%)	12 (14%)
Kyleena	6 (10%)	4 (05%)
Skyla	3 (05%)	2 (02%)
Abnormal Ultrasound	12 (19%)	23 (27%)
Uterine anomaly		
Arcuate uterus	1 (1.5%)	1 (1.2%)
Bicornuate uterus	——	2 (2.4%)
IUD removed due to ultrasound findings	12 (19%)	23 (18%)

Discussion

Of the one hundred and forty-seven patients in this study, twenty-seven (18%) required IUD removal based on an IUD post insertion ultrasound. Additionally, of the asymptomatic group, fifteen (18%) required removal of the IUD on identified ultrasound findings at the 4-8 weeks IUD post insertion visit.

Malpositioned or displaced IUD's that necessitated removal in both symptomatic and asymptomatic patients were present across all ages, parity, postpartum insertions, and IUD brand types. This emphasizes the clinical usefulness in performing a routine ultrasound in all IUD post insertion patients.

Though rare, unsuspected bicornuate or arcuate uterus may be identified on an IUD post insertion ultrasound. Patients should be informed of the lessened IUD potential for contraceptive efficacy or the relief of heavy menses, less so in the case of an arcuate uterus.

The clinical significance of an embedded IUD arm into the myometrium or an IUD in the lower uterine segment on ultrasound is debatable as to its clinical effectiveness

or the potential for migration over time into an appropriate intra uterine location. In either case, identification of these findings on ultrasound necessitate additional patient discussion, counseling, and follow up as to any IUD related symptoms from a malpositioned IUD, as well as the potential risks of pregnancy or incomplete relief of heavy menses.[2]

Limitations of this retrospective review study include a relatively low number (n=147) of patients, various IUD brand types inserted, and the lack of a control group for patient characteristics to allow for full statistical comparison. Another limitation is the selection bias that may occur in the retrospective review of reported data. Additionally, only 2/3 (67%) of our patients had sufficient data regarding an IUD post insertion ultrasound being performed.

Future studies may include a prospective study of sufficient numbers that further evaluates patient characteristics or IUD brand types that contribute to abnormal findings on the IUD post insertion ultrasound.

In conclusion, the data in this study does support the routine use of performing ultrasound at the IUD post insertion visit in both the symptomatic and asymptomatic patient.

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